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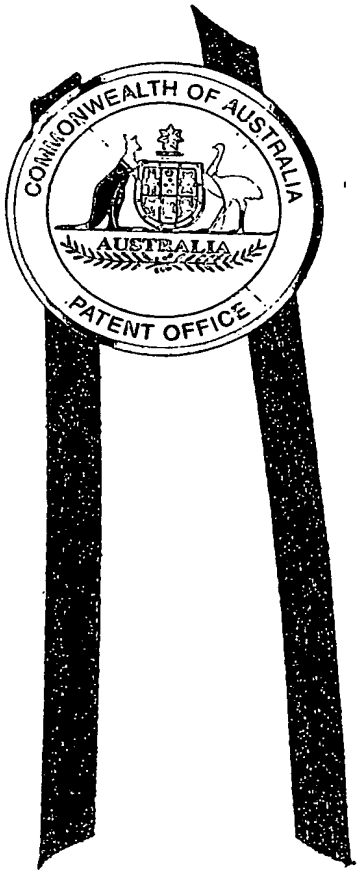

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Twenty-second day of April 2004

J. Billingsley

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

P/00/009 28/5/91
Regulation 3.2

ORIGINAL

AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

Invention Title: "Refrigerated Cabinet"

The invention is described in the following statement:

"Refrigerated Cabinet"

Field of the Invention

This invention relates to a refrigerated cabinet.

Background

It is a characteristic of refrigerated cabinets such as domestic refrigerators that they provide a storage space and have a front door which is opened to enable access into the storage space. The difficulty with conventional domestic refrigerators arises from the circumstance that when the door is opened, all of the cold air contained within the storage cabinet is able to readily escape through the open front face of the storage space. In addition in commercial situations it is an established practice to provide cool rooms with doors which facilitate access into the cool room for the purposes of extracting goods from the cool room and/or the purposes of entry. Furthermore in retail sites it is common practice to provide refrigerated cabinets which have a permanently open front face to facilitate access by customers to the goods contained within that cabinet through the open front face. In order to prevent the loss of cool air from the cabinet it is usual practice to generate a forced air flow through the space which tends to control the flow of cool air to limit its loss through the open front face of the cabinet and/or to provide a curtain-like closure which provides a temporary closure to the space but which is readily capable of being displaced to enable access into the space.

Disclosure of the Invention

Accordingly the invention resides in a refrigerated cabinet comprising a storage space having a front face through which access is gained to the space, the space including a zone subdivided into at least one compartment, each compartment defined by a drawer, each drawer having been moveable within the zone from a retracted position at which it is accommodated within the zone and

an extended position at which it extends forwardly from the space, wherein when in the extended position the interior of the compartment is accessible from an upper portion of the drawer and when the drawer is in the retracted position the compartment is able to communicate with the remainder of the space, a cooling means adapted cool at least the upper portion of the remainder of the space,.

According to a preferred feature of the invention a portion of the compartment is associated with a closure, said closure being moveable between an open position and a closed position wherein when the drawer is in its retracted position the closure is moved to the opened position to provide said communication and when the drawer is in its extended position the closure is in its closed position.

According to a preferred feature of the invention said remainder of the space includes a plenum formed between the walls of the space and the at least one compartment said communication being between the plenum and the at least one compartment.

According to a preferred feature of the invention the closure comprises at least a portion of the rear wall of the drawer and the plenum is located between the rear wall of the face of the rear walls of the at least one compartment.

According to a further preferred feature of the invention the plenum is defined by a wall of the space and an opposed wall, said opposed wall being provided with a set of closures which are in one to one relationship with the compartments, said closures being moveable between a closed position and an open position wherein when the drawers are in the retracted position they cooperate with the closures moved to the open position to provide said communication when said drawers are moved from the retracted position the closures are closed to prevent said communication.

According to a preferred feature of the invention wherein at least a portion of the upper face of the compartment is open. According to a further preferred feature of the invention the portion of the upper face communicates with the source when the drawer is in the retracted position.

According to a preferred feature of the invention the front face of the at least one compartment sealingly cooperates with the front face when the drawer is in the retracted position.

According to a preferred feature of the invention a plurality compartments are accommodated within the zone.. According to a preferred feature of the invention the compartments are supported in a vertical array.

According to a further feature of the invention the front face is associated with a door which controls said access. According to a further preferred feature of the invention the door accommodates one or more storage zones, the space defined between the door and front face communicating with the remainder of the space. According to on embodiment the storage zones are closed by a closure which is capable of being opened wherein the interior of the storage zones communicate with the remainder of the space. According to a preferred feature of the embodiment the communication between the remainder of the space and the space defined between the door and front face and/or storage zones is through passageways provided in the door.

The invention will be more fully understood in the light of the following description of several specific embodiments.

Brief Description of the Drawings

The invention is described with reference to the accompanying drawings of which;

Figure 1 is a schematic sectional side elevation of a refrigerated cabinet according to the embodiments with the door in a closed position; and

Figure 2 is a schematic sectional side elevation of a refrigerated cabinet according to the embodiment with the door in the open position and a drawer in an extended position.

Detailed Description of Specific Embodiments

The first embodiment shown in the accompanying drawings relates to a domestic refrigerater which comprises a cabinet 11 which defines a storage space within its interior. The cabinet 11 is open at its front face and is provided with a door 13 which is associated with the front face to be moveable from a closed position as shown at Figure 1 to prevent access to the front face of the cabinet and an open position as shown at Figure 2 which enables access to the front face of the cabinet. The storage space of the cabinet includes a zone which is defined by a set of compartments 15. Each compartment 15 is closed at its lower and upper face. In addition the rear face of each compartment is closed by a closure element 17 which is pivotally supported from the lower wall of the respective compartment such that it is moveable between a closed position at which the upper edge of the closure 17 substantially sealingly cooperates with the rearmost end of the upper wall of the compartment and an open position at which the compartment is declined rearwardly to provide communication into the compartment through the gap defined between the upper edge of the closure and the rear edge of the upper-most wall of the respective compartment.

The cabinet is associated with a conventional refrigeration circuit comprising compressor 19 supported in the lower portion of the cabinet, a condenser 21 supported from the rear exterior face of the cabinet and a vaporiser 22 which is accommodated at the upper end of the compartment of the space. If desired the refrigerator can be provided with a fan which causes air to pass over the vaporiser and thence through the space.

The space within the cabinet comprises a plenum 23 defined between the rear wall 25 of the space at an intermediate wall 27 which is spaced inwardly from the rear wall 25. The intermediate wall is provided with a plurality of openings 29 which provide communication between plenum 23 and an intermediate portion 24 of the space defined between the intermediate wall 27 and the rear walls of the compartments.

Each compartment 15 slidably supports a drawer 31 which is moveable from a retracted position at which it is fully accommodated within the compartment 15 (as shown in Figure 1) and an extended position at which it extends forwardly from the compartment (as shown in the case of the uppermost compartment of Figure 2). Each drawer comprises a lower wall, a front wall 35 and a rear wall 33 has an open top. The front face 35 of each drawer sealingly cooperates with the front face of the cabinet such that when the drawer is in its retracted position the compartment is sealingly closed at the front face. The rear wall of 33 of each drawer cooperates with the closure 17 of each compartment to move the closure to its open position when the drawer is in its retracted position. Each closure 17 is biased such that on the drawer being moved towards its extended position out of engagement with the closure the closure will move to its closed position.

As a result of the embodiment the space within the refrigerated cabinet is divided into a plurality of spaces which are each defined by the drawers 31. Access to the drawers 31 is gained by opening the door 13 of the cabinet and moving the respective drawer 31 to its extended position. In so doing the communication between the plenum 23 and the respective compartment 15 is closed as a result of the closing of the closure 17. Access to the contents of drawer 31 are gained through the open top of the drawer. As a result communication between the plenum 23 and each compartment is only effected when the drawer contained within the compartment is in its retracted position. Therefore when the door 13 of the cabinet is open substantially little cold air is lost from the storage space within the cabinet even when access is gained to the interior of a drawer. With the door 13 open and a drawer 31 in its extended position the plenum 23 is closed and access the drawer is though the open top only and therefore little cool air is lost through the compartment. The most significant loss of cool air is a result of disturbance of the contents of the drawer.

In addition the invention the door 13 supports a set of storage zones 41 which are each associated with a separate closure which enable access into each storage zone. Each storage zone is connected to a duct 43 in the door which connects with a corresponding positioned passageway 45 in the upper wall of the cabinet when the door is closed and which communicates with the space around

the vaporiser to enable cool air to flow into each storage zone to cool the contents thereof. If desired the passageway 45 can also communicate with the space defined between the door and the front face of the cabinet when the door is in its closed position.

According to a further embodiment of the invention the closure of each compartment may be accommodated by the rear wall of the drawer which cooperates with the walls of the compartment to sealing close the compartment on a drawer being moved from the retracted position to the extended position but when the drawer is in the closed position opens to provide communication between the source of cool air and the interior of the drawer.

According to a further embodiment of the invention the drawer substantially cooperates with the walls of the compartment to substantially prevent any substantial movement of cool air from the plenum past the drawer and through the front face. The engagement need not be a sealing engagement. In addition the upper face cooperates with the upper wall of the compartment whereby when on the drawer moving to the retracted position the upper open face of the drawer 31 opens into the plenum space. According to this embodiment no closure is provided between the respective compartment and the plenum space to isolate the compartment from the plenum space when the drawer is moved towards its extended position.

Each of the embodiments according to the invention of application can be applied to a domestic refrigerated cabinet, domestic freezers, commercial cool rooms, commercial refrigerated cabinets and the like.

Throughout the specification, unless the context requires otherwise, the word "comprise" or variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or group of integers but not the exclusion of any other integer or group of integers.

It should be appreciated that the scope of the present invention need not be limited to the particular scope of the embodiments described above.

Dated this seventh day of April 2003.

DNA Holdings Pty Ltd
Applicant

Wray & Associates
Perth, Western Australia
Patent Attorneys for the Applicant(s)

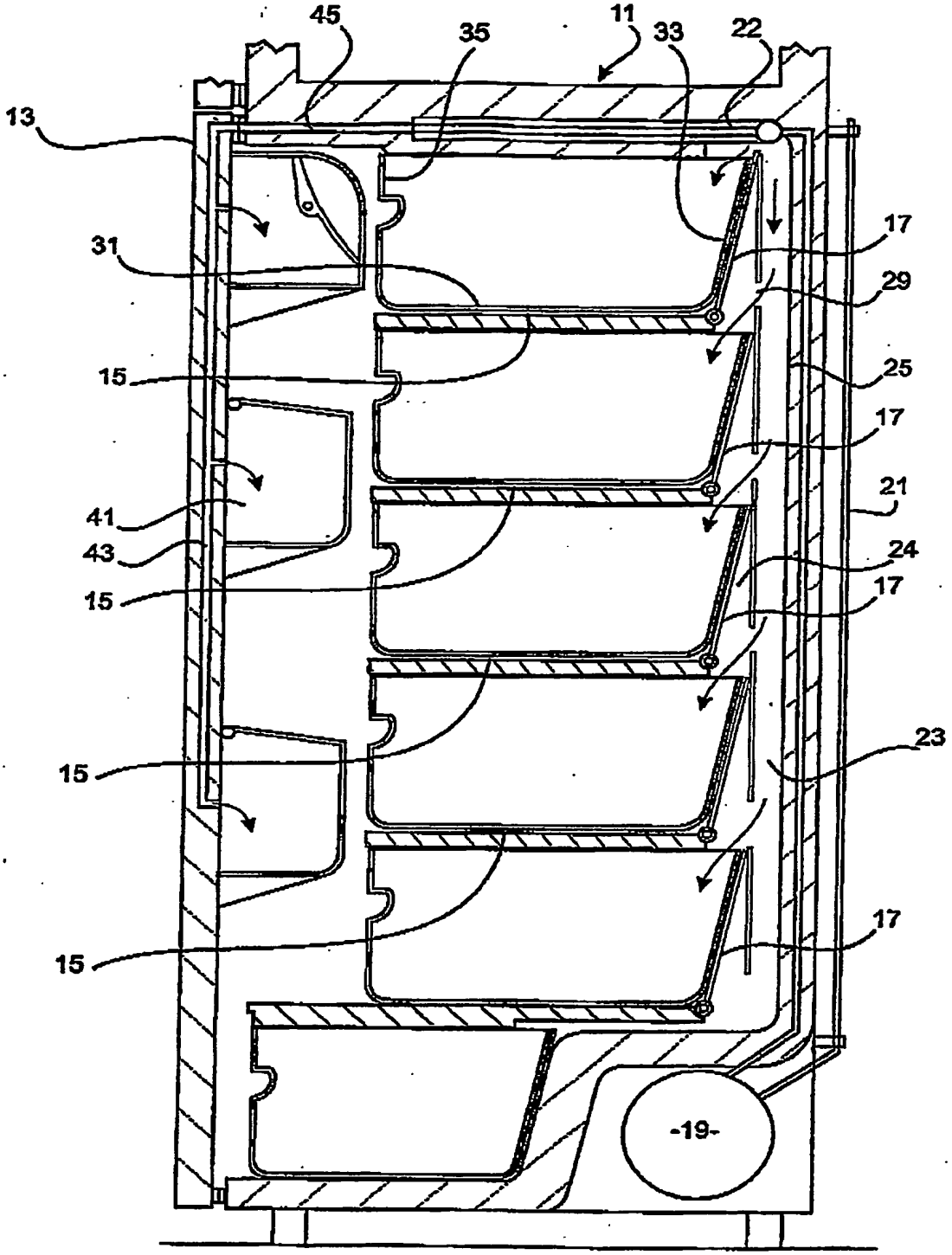

Fig. 1

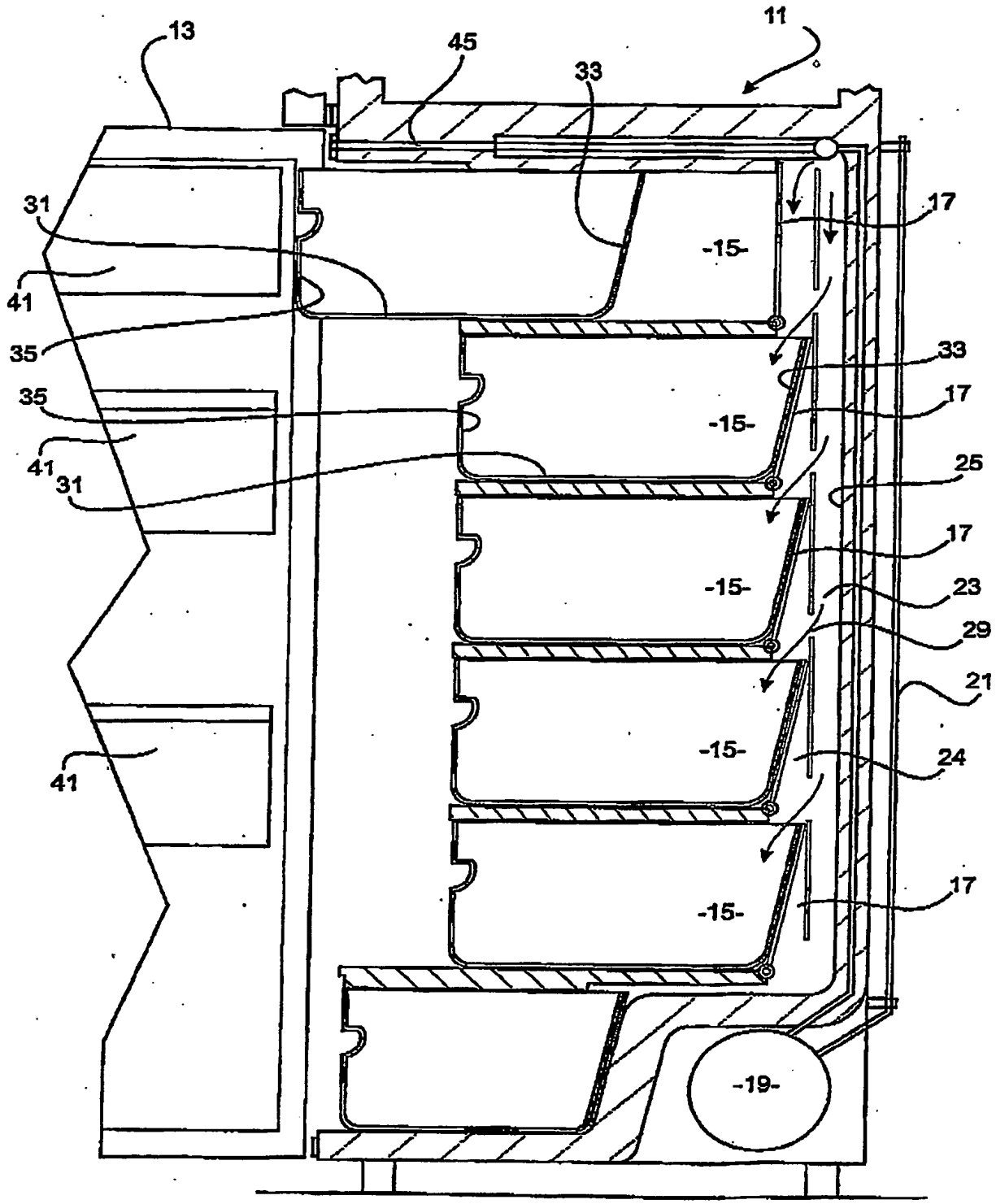
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Fig. 2

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